

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (original). A device to synthesize a frequency  $F1 \rightarrow F2$  with high spectral purity, comprising a synthesizer with a variable step  $F3 \rightarrow F4$ , comprising at least one variable rank divider  $N_b$  located after said synthesizer and a frequency control device delivering the division rank command of the variable rank divider, the command of the frequency of the variable-step synthesizer, the command of the synthesis step of the variable-step synthesizer.

Claim 2 (currently amended). ~~A~~The device according to claim 1 comprising a filtering device positioned after the variable-rank device  $N_b$ .

Claim 3 (currently amended). ~~A~~The device according to ~~one of the claims 1 or 2~~ claim 1, wherein the variable-step synthesizer is a fractional step phase-locked loop synthesizer.

Claim 4 (currently amended). ~~A~~The device according to ~~one of the claims 1 or 2~~ claim 1 wherein the variable-rank divider  $N_b$  takes the values  $N_1$  to  $N_p$ , these values following an arithmetic progression, and wherein the maximum frequency of the synthesizer is given by  $F_4 = N_1 * F_2$  where  $N_1$  is the smallest value of the sequence and the frequency  $F_3$  is a function of  $N_2$ .

Claim 5 (currently amended). ~~A~~The device according to claim 4 wherein the value of the frequency  $F_3$  is substantially equal to or slightly lower than  $(N_1/N_2) * F_4$ .

Claim 6 (currently amended). ~~A~~The device according to ~~one of the claims 1 or 2~~ claim 1 wherein the variable-rank divider  $N_b$  takes the values  $N_1$  to  $N_p$ , these values following a non-arithmetic progression.

Claim 7 (currently amended). ~~A~~The device according to claim 6 wherein  $F_3$  is substantially equal to or smaller than  $aF_4$  where  $a$  is the smallest value obtained in dividing two consecutive elements one after the other.

Claim 8 (currently amended). ~~A~~The device according to claim 6 wherein the highest division rank  $N_b$  is chosen.

Claim 9 (currently amended). ~~A~~The device according to claim 1 comprising a mixer receiving the output signal from the fractional step synthesizer and a mixing signal.

Claim 10 (currently amended). ~~A~~The method to synthesize a frequency  $F_1 \rightarrow F_2$  with high spectral purity using a variable-step synthesizer  $F_3 \rightarrow F_4$ , comprising at least one step in which the output signal of the variable-step synthesizer is transmitted to a multiple-rank divider  $N_p$  and wherein the division rank, the synthesis step of the synthesizer and the frequency of the variable-step synthesizer are modified.

Claim 11 (currently amended). ~~A~~The method according to claim 10 wherein the values  $N_b$  vary according to an arithmetic sequence  $N_1 \dots N_p$  and wherein the frequency  $F_4$  is determined by  $N_1 * F_2$  and the frequency  $F_3$  is a function of  $N_2$ .

Claim 12 (currently amended). ~~A~~The method according to claim 11 wherein the value of the frequency  $F_3$  is chosen to be substantially equal to or slightly below  $(N_1/N_2) * F_4$ .

Claim 13 (currently amended). ~~A~~The method according to claim 10 wherein the values  $N_b$  vary according to a non-arithmetic sequence and wherein two consecutive values of the sequence are divided.

Claim 14 (currently amended). ~~A~~The method according to claim 13 wherein  $F_3$  is substantially equal to or smaller than  $aF_4$  where  $a$  is the smallest value obtained in dividing two consecutive elements of the sequence.

Claim 15 (currently amended). ~~A~~The method according to claim 14 wherein the highest division rank  $N_b$  is chosen.

Claim 16 (currently amended). ~~A~~The method according to claim 10, wherein the modification of the commands of the divider and the variable-step synthesizer is simultaneous.

Claim 17 (currently amended). ~~A~~The method according to one of the above claims wherein the ratio of the reference frequency to the frequency step,  $F_{ref}/\Delta F$ , is the LCM of the sequence  $N_1 \dots N_p$ .